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## CLAIMS

- 1. A monovalent influenza vaccine composition comprising an influenza virus component which is a low dose of egg-derived influenza virus antigen from an influenza virus strain that is associated with a pandemic outbreak or has the potential to be associated with a pandemic outbreak, in combination with a suitable adjuvant.
- 2. A vaccine composition according to claim 1 wherein the influenza virus antigen is in the form of purified whole influenza virus.
- 3. A vaccine composition according to claim 1 or claim 2 wherein the adjuvant is an aluminium salt or salts.
- 4. A vaccine composition according to claim 3 wherein the adjuvant is aluminium hydroxide and aluminium phosphate.
  - 5. A vaccine composition according to claim 4 wherein the amount of aluminium phosphate exceeds the amount of aluminium hydroxide.
- 20 6. A vaccine composition according to any one of claims 3 to 5 wherein the aluminium salts are present in the range 0/4 to 1.0 mg per vaccine dose.
  - 7. A vaccine composition according to any one of claims 1 to 6 wherein the low antigen dose is less than 15 μg of haemagglutinin per dose or no more than 15 μg per combined dose of vaccine.
    - 8. A vaccine composition according to claim 7 in which the low antigen dose is less than 10 µg of haemagglutinin per dose or per combined dose of vaccine.
- 9. A vaccine composition according to claim 8 in which the antigen dose is between 0.1 and 7.5 μg, or between 1 and 5 μg of haemagglutinin per dose or per combined dose of vaccine.

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- 10. A vaccine composition according to any one of claims 1 to 9 wherein the influenza virus antigen is substantially free of host cell contamination.
- A vaccine composition according to any one of claims 1 to 10 wherein the
   influenza virus component is purified by a method which includes a protease incubation step to digest non-influenza virus proteins.
  - 12. A kit comprising:
    - (i) a low dose of influenza virus antigen formulated with an adjuvant suitable for parenteral administration; and
    - (ii) a low dose of influenza virus antigen for mucosal administration, in a mucosal delivery device such as an intranasal spray device.
- 13. The kit according to claim 12, wherein the combined antigen dose of the parenteral and mucosal formulations is no more than 15 µg haemagglutinin.
  - 14. The kit according to claim 13 wherein the combined antigen dose is less than 10 μg haemagglutinin.
- 20 15. The kit according to claim 13 or claim 14 wherein the influenza antigen in (i) is inactivated whole virus and the influenza antigen in (ii) is split virus.
  - 16. The kit according to any one of claims 13 to 15 wherein the parenteral adjuvant is an aluminium salt or salts.
  - 17. A method for the production of an influenza vaccine for a pandemic situation which method comprises admixing egg-derived influenza virus antigen from a single influenza virus strain that is associated with a pandemic outbreak or has the potential to be associated with a pandemic outbreak, with a suitable adjuvant and providing vaccine lots or vaccine kits which contain less than 10 µg influenza haemagglutinin antigen per dose or no more than 15 µg haemagglutinin per combined dose.
  - 18. A method according to claim 17 wherein the antigen is highly purified.

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- 19. A method according to claim 17 or claim 18 wherein the influenza virus antigen is in the form of whole influenza virus particles.
- The vaccine composition or kit or method according to any one of claims 1 to 19 wherein the influenza antigen is selected from an H2 antigen such as H2N2 and an H5 antigen such as H5N1.
- 21. A process for producing influenza virus antigen for use in a vaccine, which
  10 process comprises the step of incubating a mixture containing influenza virus particles
  with a protease to digest non-influenza virus proteins.
  - 22. A method according to claim 20 wherein the protease digestion step is performed after the influenza virus antigen has been partially purified by one or more physical separation steps.
  - 23. A method according to claim 21 or/claim 22 wherein the protease digestion step is performed prior to a virus inactivation step.
- 20 24. A method according to claim 23 wherein the purification process comprises the steps of:
  - (i) providing a harvested mixture of cultured influenza virus and host proteins from a culture;
  - (ii) partially purifying the influenza virus in the mixture by one or more physical purification steps;
  - (iii) performing a protease digestion step on the partially purified mixture to digest host proteins;
  - (iv) inactivating the influenza virus;
  - (iv) further purifying the influenza virus by at least one filtration step.

The use of below 10  $\mu$ g, or below 8  $\mu$ g, or from 1 - 7.5  $\mu$ g, or from 1 - 5  $\mu$ g of egg-derived influenza virus haemagglutinin antigen from a single strain of influenza associated with a pandemic outbreak or having the potential to be associated with a



pandemic outbreak, in the manufacture of a vaccine lot or a vaccine kit for protection against influenza virus infection.

The use of no more than 15 μg, or below 10 μg, or below 8 μg, or from 1 - 7.5
 μg, or from 1 - 5 μg of egg-derived influenza virus haemagglutinin antigen from a single strain of influenza associated with a pandemic outbreak or having the potential to be associated with a pandemic outbreak, in the manufacture of a two-dose vaccine for simultaneous parenteral and mucosal administration.

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